

**METHOD AND APPARATUS FOR GENERATING TRANSACTION-BASED  
STIMULUS FOR SIMULATION OF VLSI CIRCUITS USING EVENT COVERAGE  
ANALYSIS**

**ABSTRACT OF THE DISCLOSURE**

The present invention applies genetic algorithmic generation of test cases the simulation of VLSI logic circuit blocks. The present invention generates a number of original test cases. This aggregate of solutions is provided to a circuit simulator. The results of the simulator are maintained in a matrix or table. The results detail the number of times that particular logic states or events associated with the VLSI block have been stimulated by particular test cases. The aggregate of solutions and the simulation results are then analyzed by the genetic algorithm. The genetic algorithm preferably identifies states associated with the circuit simulation that have not been produced by the original test cases. The genetic algorithm then combines characteristics of various test cases to generate new test cases. The new test cases are provided to the circuit simulator thereby providing a higher degree of confidence that the entire VLSI chip design has been simulated.